

1/2 032 UNCLASSIFIED PROCESSING DATE--3000770
TITLE--KINETICS OF THE DISSOLUTION OF CERTAIN METALS IN NITROSE -U-
AUTHOR--(03)-RTVELADZE, V.V., BONDIN, S.M., KRESTOVNIKOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--IZVEST. V.U.Z., TSVETNAYA MET., 1970, (1), 35-38
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--CHEMICAL KINETICS, NITROSO COMPOUND, COPPER, SILVER,
PALLADIUM, SULFURIC ACID, NITROGEN OXIDE, CORROSION
CENTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1551 STEP NO--UR/0149/70/000/001/0035/0038
CIRC ACCESSION NO--AP0125177
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE DISSOLUTION OF
CU, AG, AND PD IN NITROSE (FORMALLY REPRESENTED BY H_2SO_4 SO SUB_4 PLUS
NO) WAS STUDIED USING THE ROTATING DISC METHOD. THE RATE OF DISSOLUTION
VARIED AS THE SQUARE ROOT OF THE NUMBER OF REVOLUTIONS. THE RATE OF
DISSOLUTION OF PD AND AG WAS OF THE FIRST ORDER IN RELATION TO THE ACID
CONCENTRATION; THE DISSOLUTION OF CU OBEYED A MORE COMPLEX RELATION.
THIS DIFFERENCE WAS ATTRIBUTED TO THE FACT THAT THE DISSOLUTION OF CU
WAS GOVERNED BY DIFFUSION PROCESSES, AND THAT OF PD AND AG BY A
COMBINATION OF DIFFUSION AND KINETIC MECHANISMS.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THERMAL EXPANSION AND VOLUME CHANGES DURING THE MELTING OF SOME A
PRIMEI B PRIMEIII C SUB2 PRIMEVI COMPOUNDS -U-
AUTHOR-(03)-GLAZOV, V.M., MALSAGOV, A.U., KRESTOVNIKOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 143-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SELENIDE, TELLURIDE, COPPER COMPOUND, GALLIUM COMPOUND, INDIUM
COMPOUND, THERMAL EXPANSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1346

STEP NO--UR/0363/70/006/001/0143/0145

CIRC ACCESSION NO--AP0121839

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30JCT70

CIRC ACCESSION NO--AP0121839

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. DEPENDENCE OF THE D. OF 4 COMPOS. OF THE GROUP A PRIMEI B PRIMEIII C SUB2 PRIMEVI WAS STUDIED, NAMELY: CUGA SE SUB2, CUGATE SUB2, CUINSE SUB2, AND CUENTE SUB2. THE D. OF THE SOLID STATE FALLS OFF LINEARLY DURING HEATING UP TO THE M. P. DURING THE TRANSITION FROM THE SOLID TO THE LIQ. STATE, THE D. CHANGES ABRUPTLY BY DECKEASING, AND ON FURTHER HEATING OF THE MELT, IT AGAIN FOLLOWS A LINEAR LAW. THE VOL. CHANGES ON MELTING OF THESE COMPOS. AGREE WITH THE D. BEHAVIOR. FROM THERMAL EXPANSION DATA, CERTAIN CHARACTERISTICS OF THE INTERAT. BOND IN THE LATTICE OF THE A PRIMEI B PRIMEIII C SUB2 PRIMEVI COMPOS. CAN BE QETD. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HIGH TEMPERATURE REGION OF THE IRON CARBON PHASE DIAGRAM -U-

AUTHOR--(02)-FILIPOV, E.S., KRESTOVNIKOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 120-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON, CARBON, HIGH TEMPERATURE EFFECT, NICKEL, MOLYBDENUM,
PHASE DIAGRAM, LIGHT EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1548

STEP NO--UR/0148/70/013/003/0120/0122

CIRC ACCESSION NO--AP0125174

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 027

CIRC ACCESSION NO--AP0125174

ABSTRACT/EXTRACT--(U) GP-O-

ABSTRACT. TO FACILITATE THE INTERPRETATION OF THE EXPTL. RESULTS OF THE INTENSITY OF THE LIGHT EMISSION VS. TEMP. OR C CONTENT IN TERMS OF TRANSITION STRUCTURES IN THE FE-C SYSTEM AT 1150-1500DEGREES (E. S. FILIPOV, ET AL., 1969), ANALOGOUS NI-MO SYSTEM WAS STUDIED.

FACILITY: MOSK. INST. STALI SPLAYOV, MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--AN AUTOMOTIVE DYNAMOMETRIC MACHINE WITH A TRACTIVE FORCE OF UP TO
10 TONS -U-
AUTHOR--(03)-KRESTOVNIKOV, G.A., PEVUNCHIKOV, V.I., SMCHUKLIN, S.A.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, AVTOMOBIL'NAYA PROMYSHELENNOST', NO 2, 1970, PP 14-16
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--DYNAMOMETER, AUTOMOBILE, HYDRODYNAMICS/(U)MAZ501 AUTOMOBILE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1599/1221 STEP NO--UR/0113/TQ/000/002/0014/0016
CIRC ACCESSION NO--AP0123185
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123185

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. AN AUTOMOTIVE DYNAMOMETRIC MACHINE HAS BEEN PRODUCED WITH A HYDRODYNAMIC BRAKING UNIT BASED ON THE HAZ-501 AUTOMOBILE. THE MACHINE IS DISTINGUISHED BY THE HIGH STABILITY OF ITS BRAKING REGIMES, RELIABILITY, AND OPERATION.

UNCLASSIFIED

Oncology

USSR

UDC 575.8.01.00

KRESTOVNIKOVA, Prof. V. A., Honored Scientist, Professor

"Comparative Study of Microorganisms Isolated From Tumors and Blood of Cancer Patients With the Agent of Cancer in Plants"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, Vol 16, No 5, May 71, pp 74-79

Abstract: Gram-negative micrococci which could be cultured only on special media were isolated from the tumors and blood of cancer patients on infection of mice and guinea pigs with cultures of these micrococci, which sometimes assumed a rod-like shape, a lethal disease resulted. The work on this subject has been described by the author in the monograph Mikrobiologicheskoye Izucheniye Rakovykh Opukholey (Microbiological Study of Cancer Tumors), Medgiz, Moscow, 1960. Micrococci isolated from the tumors of cancer patients and from rabbits intravenously infected with micrococci were identical biochemically, culturally, and immunologically to Bac. tumefaciens, the agent of plant cancer. Bac. tumefaciens was agglutinated by sera of cancer patients. Gamma-globulin from the serum of horses infected with live cultures isolated from cancer patients reacted at the same titer with these cultures and cultures of Bac. tumefaciens in complement fixation tests. The microorganism isolated from

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USSR

KRESTOVNIKOVA, Prof. V. A., Vestnik Sel'skokhozyaystvennoy Nauki, Vol 16,
No 5, May 71, pp 74-79

cancer patients has the specific characteristics of the genus Agrobacterium that are exhibited by Bac. tumefaciens (Agrobacterium tumefaciens). As a result of the bacteriolysis which is typical for this microorganism, filtrable particles of the microorganism develop that penetrate into host cells, exerting a pathogenic effect and damaging the genetic apparatus. Defense measures such as fever and other symptoms characteristic for infection are absent. The peculiar traits of the disease are responsible for its malignant course and give many scientists reasons for denying the infectious nature of cancer.

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- 5B -

USSR

UDC: 681.327

OKUN', G. L. CHERVA, Ye. G., KRESTOVSKAYA, V. P.

"Device for Making Electronic Computer Compatible With Telegraph Communications Line"

USSR Authors' Certificate No 249089, Filed 15 April 1968, Published 4 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B266P, by N. V.)

Translation: This device contains a buffer register, code converter, punch register, telegraph apparatus register, and control device. It differs from known devices in that in order to eliminate redundancy in the transmission of alphanumeric information to the telegraph communications line, the device contains a service combination register, differentiating circuits, and a flip-flop determining the order of reading of service or information combinations. The outputs of the service combination register are connected to the inputs of the differentiating circuits. The outputs of these circuits are connected to the input of the reading order flip-flops for service or information combinations, the outputs of which are connected to the potential inputs of the tubes reading the service and information combinations. One illustration.

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USSR

UDC 539.18

MOROZOV, V. N., POPLYALKOVSKAYA, L. K., GRACHEVA, G. P., and KREST'YANINOV, A. G.

"Calculation of Degree of Calcium Atomization in Acetylene-Air and Propane-Butane-Air Flames"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 18, No 1, Jan 73, pp 17-22

Abstract: The article calculates the partial pressures of calcium compounds in an acetylene-air and a propane-butane-air flame under various combustion modes characterized by the air volume-hot gas volume ratio $V_{\text{air}}/V_{\text{gas}}$ or the quantity C/O in the hot mixture, and on the basis of the results he calculates the degree of atomization. The dependence of the degree of atomization on the composition of the hot mixture, the quantity of water solvent introduced into the flame, and the calcium concentration of the solution is calculated.

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USSR

UDC 681.121.089.6

KREST'YANINOV, A. V.

"Means of Increasing the Accuracy of Measurement of Flow Rates and Quantities of Material"

Tr. Metrol. In-tov SSSR [Works of Metrology Institutes, USSR], 1972, No 135 (195), pp 16-19, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract No S.32.675).

Translation: At the present stage of development of instrument building, resources for increasing accuracy must be sought in the area of strengthening metrological developments in scientific research and experimental design work on the creation and improvement of instruments. The most important aspects of increasing accuracy of measurement are: performance of studies on hydrodynamic processes occurring in measuring and drive devices in order that additional factors influencing the accuracy of measurements might be considered; scientific research work on the development of methods of conversion of characteristics of instruments to actual fluids; development of automated complexes based on computer equipment to eliminate subjectivism in the organization of measurements, automation of calibration and testing operations, centralization of metrological work; development and introduction of means for high-precision measurements allowing calibration and checking of devices with the required accuracy, assuring proper working conditions as to ranges and measured media. It is concluded that it is

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USSR

UDC 681.121.089.6

KREST'YANINOV, A. V., Tr. Metrol. In-tov SSSR, 1972, No 135 (195), pp 16-19.
necessary to create a special scientific center for metrology, equipped
with standard-setting devices. 4 Biblio. Refs.

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- 103 -

KREST'YANINOV, V.

SO: JPRS 55933
09 MAY 72

6/1/72

Article by R. Krest'yaninov, V. Krest'yaninov, Special Correspondent,
Moscow, No. 11, 1971, 17 pages.

The Third All-Union Conference on the Development and Application of Automatic Control Systems in Construction was held at the end of October of 1971 in Leningrad. The conference was organized by the Central and Local Planning Boards of the Scientific and Technical Society of the Construction Industry, the Administration of Scientific Research Projects and Committees, the State Construction USSR State Construction Administration, and the Scientific Committee of the USSR State Construction Committee and the Main Construction Administration. Approximately 300 people participated in the work of the conference — representatives of the USSR and republic ministries and departments, construction, scientific research and design organizations, and so on.

Reports were presented at the conference by Academician of the USSR Academy of Sciences, Director of the Chief Scientific Institute of the USSR Academy of Sciences V. P. Pavlov ("Automatic Construction Control Systems"); Chief Scientist of the Computer Engineering Department of the USSR State Construction Committee R. Krest'yaninov ("Prospects for the Development of Automatic Construction Control Systems"); Deputy Chief of Technical Administration of the USSR Ministry of Construction O. Gerasimov ("Organization of the Development and Introduction of Automatic Construction Control Systems in the USSR Ministry of Construction"). In addition to the plenary sessions, there were three sections at the conference.

State Committee of the USSR Council of Ministers for Construction.

1/2 035 UNCLASSIFIED
TITLE--PIG IRON CONTAINING BORON AND ALUMINUM -U-

PROCESSING DATE--04DEC70

AUTHOR--(02)--KRESTYANOV, V.I., VASHUKOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--GER. OFFEN. 1,804,690

DATE PUBLISHED--09JUN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PIG IRON, BORON ALLOY, ALUMINUM ALLOY, CHEMICAL PATENT, WEAR
RESISTANCE, NICKEL ALLOY, MECHANICAL STRENGTH, CHROMIUM ALLOY, SILICON
ALLOY, MANGANESE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1790

STEP NO--GY/0000/68/000/000/0000/0000

CIRC ACCESSION NO--AA0130623

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 035

CIRC ACCESSION NO--AA0130623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WEAR RESISTANCE TO SLIDING FRICTION OF PIG IRON WAS INCREASED BY ADDING 0.008-0.1PERCENT B AND 0.02-0.15PERCENT AL. THUS, FERROBORAL CONFG. 9-11PERCENT B AND SIMILAR TO 10PERCENT AL PLUS NI WAS ADDED CONTINUOUSLY AND SIMULTANEOUSLY TO PIG IRON IN A CUPOLA FURNACE TO GIVE GRAY PIG IRON CONTS. C 3.103.4, SI 1.6-2.0, MN 0.6-0.9, CR 0.2-0.4, NI 0.4-0.6, B 0.005-0.05, AND AL 0.01-0.03, S SMALLER THAN 0.12, AND P SMALLER THAN 0.16PERCENT. THIS MATERIAL HAD PEARLITE STRUCTURE, 190-220 HARDNESS NO., LARGER THAN 63 KG-MM PRIME2 BENDING STRENGTH, LARGER THAN 28 KG-MM PRIME2 BREAKING STRENGTH, AND A 3 FOLD HIGHER WEAR RESISTANCE TO SLIDING FRICTION THAN A COMMON PIG IRON. FACILITY: EFREMOV, A. I. TYAZHSTANKOGIDROPPRESS PLANT.

UNCLASSIFIED

Pharmacology and Toxicology

UDC 615.217.34-015

USSR

MAKSIMOVICH, Ya. B., and KRESYUN, V. I., Department of Pharmacology, Odessa Medical Institute

"Nicolit as a Psychotropic Agent"

Kiev, Vrachebnoye Delo, No 8, 1973, pp 99-101

Abstract: Studies were conducted on a new organic compound of lithium and nicotinic acid (nicolit). Animal studies showed nicolit to possess low toxicity and exert a definite tranquilizing effect; the latter was ascribed to depression of metabolic processes in structures of the limbic system and in cortical structures. Over 90 experiments on 245 healthy human subjects showed that a dose of 100 mg singly administered increased emotional stability and decreased neuropsychological tension with consequent improvement in psychomotor work capability. No side effects were noted. These studies support the contention that metabolites evidence high pharmacologic effectiveness and low toxicity.

UDC 615.472:615.846

USSR

LIVENSON, A. R., FRENK, A. A., KRETILOVA, Ya. L., and SOBOLEVSKIY, S. V.,
All-Union Scientific Research Institute of Medical Instrument-Building, Moscow

"'Volna-2' Apparatus for Microwave Therapy"

Moscow, Meditsinskaya Tekhnika, No 4, Jul/Aug 72, pp 21-25

Abstract: In order to eliminate shortcomings of previous apparatus using electromagnetic waves for the treatment of patients, the Volna-2 apparatus was designed to use 65 cm wavelength. This makes it possible to penetrate human tissues twice as deep and to practically eliminate the standing waves in fat layers. The reflection coeff. scattering is also reduced by 1.8-fold. The portable apparatus generates electromagnetic waves of 460 MHz frequency, with a maximum output power of 100 watts. It consists of the wave autogenerator, wave power meter, interchangeable emitters, power supply unit, and automatics. Since it is impossible to measure the power absorbed by the patient's body, the measurement of the output power of the apparatus plays an important role in establishing the dosimetry for each patient. A duration of treatment combined with the apparatus output power makes it possible to find with sufficient accuracy the radiation dose received by the patient. The total error of the output power meter should not exceed ± 25 percent. A schematic diagram of the apparatus is given, with description of all details and materials used for its design.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2 014

TITLE--POLYUREA -U-

AUTHOR--(02)-KRETOV, A.YE., BAYRAK, V.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 208,935

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--13JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYUREA, CHEMICAL PATENT, DIAMINE, POLYCONDENSATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1163

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0116628

UNCLASSIFIED

2/2 014
CIRC ACCESSION NO--AA0116628

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYUREA IS PREPD. BY
POLYCONDENSATION OF DIAMINES AND BIURET.

UNCLASSIFIED

USSR

UDC 535.347.093

KEIMASH, R. YA., PANKRATOV, V. M., GORELOV, L. V., AKSINOV, A. S., KRIVCOV, V. F.

"Automated Device for Measuring and Recording the Spectra of Optical Circular Dichroism"

Moscow, Izmeritel'naya Tekhnika, No 11, 1973, pp 23-24

Abstract: The first Soviet instrument for measuring and recording the spectra of optical circular dichroism is described. This instrument can be used to study the spatial structure of organic and inorganic compounds, materials of biological origin and others having the properties of optical activity. The spectral range of the instrument is 230-600 nm; the measurement ranges in units of optical density are $150 \cdot 10^{-4}$, $200 \cdot 10^{-4}$ and $300 \cdot 10^{-4}$ with a sensitivity no worse than one percent of the measurement range. The mathematical description of the operation of the device is presented along with its technical specifications and a brief explanation of its schematic diagram.

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KRETOVICH, V. L.

MOLECULAR MECHANISMS OF ATMOSPHERIC NITROGEN FIXATION

UDC 579.853

[Article by Member-Correspondent USSR Academy of Sciences V. L. Kretovich, Doctor of Biological Sciences, I. G. Voznesensky, Candidate of Biological Sciences, T. P. Lyov, S. S. Voznesensky, Moscow, Vostochny Akademii V. I. Ezen, Russian, No. 1, March 1972, pp. 12-17]

The atmosphere is a source of nitrogen, found in the composition of all life. The reserves of nitrogen in the atmosphere are almost unlimited. Above each hectare of soil rises a column of air containing about 50,000 tons of nitrogen, i.e., approximately 10,000 times more than in one hectare of soil. Nevertheless, neither the human nor the animal organism, nor much of the world's vegetation is capable of assimilating molecular nitrogen from the atmosphere. Man and animal also acquire nitrogen from food in the form of vegetable and animal proteins. As regards vegetation, however, they have a remarkable capacity to synthesize proteins from carbon dioxide gas, water and inorganic sources of nitrogen -- ammonia and the salts of nitric acid, represented in the final analysis a primary source of protein on our planet. But even ammonia and nitric acid salts (nitrates), in turn, are formed from molecular atmospheric nitrogen by virtue of the vital activity of a special kind of nitrogen-fixing microorganisms, living in the soil and in water bodies.

Thus, life on our planet depends on these microorganisms.

Natural nitrogen-fixing microorganisms can be classified in two groups: free-living and symbiotic, which live in symbiosis (companionship) with higher plants or fungi, supplying them with various nitrogen compounds formed in the process of fixation of atmospheric molecular nitrogen.

The history of analysis of nitrogen-fixing microorganisms goes back to 1893, when S. N. Vinnogradsky first extracted from soil the anaerobic nitrogen-fixing bacterium *Clostridium pasteurianum*. Later on, in 1901, H. Bayard discovered the anaerobic nitrogen-fixing bacterium *Desulfohalobium*. For nearly a half century these two free-living bacteria were considered the only nitrogen-fixing microbes in the soil. Development of new, highly sensitive methods of determining nitrogen-fixing activity by

57985.853
1 May 72

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MECHANISM OF THE EFFECT OF HEAVY WATER ON THE VISCOSITY OF STARCH
SOLUTIONS -U-
AUTHOR--(03)-KRETOVICH, V.L., ZOTOVA, N.N., BUSAREVA, N.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1480-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HEAVY WATER, STARCH, FLUID VISCOSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1100 STEP NO--UR/0020/70/190/006/1430/1432
CIRC ACCESSION NO--AT0119959
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

2/2 014

CIRC ACCESSION NO--AT0119959
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. VISCOSITY DATA ARE REPORTED FOR SOLNS. OF STARCH THAT HAD BEEN FORMED INTO PASTE WITH H SUB2 O AND D SUB2 O WITH AND WITHOUT ADDED UREA AT 100DEGREES. THE FORMATION OF PASTE WITH D SUB2 O TENDS TO DENSIFY THE MICELLES AND LOWERS THE VISCOSITY OF THE PASTE. THE RELATIVE VISCOSITY OF PASTE FROM CORNSTARCH INCREASED GREATLY IN CONTACT WITH UREA IN BOTH H SUB2 O AND D SUB2 O. UREA HAD LITTLE EFFECT IN THIS RESPECT ON POTATO STARCH PREPD. IN PASTE FORM IN H SUB2 O, BUT IN D SUB2 O A LARGE INCREASE IN VISCOSITY AFTER CONTACT WITH UREA WAS AGAIN NOTED. HYDRODYNAMIC VOLS. OF MICELLES OF THESE STARCHES WERE DETD. AND TABULATED UNDER THE ABOVE CONDITIONS. IT WAS SHOWN THAT D SUB2 O LOWERS THE SPECIFIC HYDRODYNAMIC VOL. OF THE STARCH MICELLES. THIS IS CAUSED BY GREATER STABILITY OF BONDS FORMED BY D, GREATER COMPACTNESS OF THE MICELLES, AND GREATER DIFFICULTY OF PENETRATION OF H SUB2 O INTO SUCH MICELLES. THE MICELLES OF PASTE FROM CORNSTARCH ARE THUS MUCH MORE DENSE THAN THOSE FROM POTATO STARCH. THE LATTER STARCH, HOWEVER, HAS MUCH WEAKER H BONDS AND A LESS TIGHTLY BONDED MICELLE FORM.

FACILITY: MOSK. TEKHNOL. INST. PISCH.

PROM., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: **AP0043662**

K

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp **507-514**

COLLECTIVE PROPERTIES OF EXCITONS IN SILICON

Ashkinadze, B. M.; Kretsu, L. P.;

Ryvkin, S. M.; Yaroshetskiy, I. D.

Recombinational radiation for high injection levels is investigated. It is shown that then the exciton density is high their collective interactions become important. At low temperatures (below 20° K) these lead to the formation of exciton «drops». At higher temperatures the formation of exciton associations, which are drop embryos, becomes possible.

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REEL/FRAME
19770066

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USSR

UDC 621.383.8

K
KRETULIS, V. S., OLEKSENKO, P. F., SVECHNIKOV, S. V., Kiev

"An Optron With Direct Optical Coupling as an Electron-Optical Element"

Moscow, Avtomatika i Telemekhanika, No 8, Aug 1970, pp 141-152

Abstract: The authors consider the functional possibilities of an optron with direct optical coupling as a transducer of electrical amplification, multiplication, summation and differentiation signals. Expressions are derived for the transfer coefficient of the optron and its Q. Comparative parameters are given for optrons with various optron pairs. The structural singularities of various electron-optical two-terminal pair networks based on injection photodiodes, conventional photodiodes, phototransistors, photoresistors, thin-film electrophosphors, and thin-film photoresistors are considered. Experimental characteristics are given for electron-optical devices which perform operations of differentiation, signal multiplication and frequency multiplication, as well as the characteristics of a high-sensitivity device which converts DC voltage to AC voltage in the microvolt region.

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USSR

UDC 621.311.25:621.039

KREVSUN, E. P. GORODETSKIY, M. YE., IL'IN, A. YA.

"Seals and Bearings of the Rotating Shafts of Dissociating Gas Atomic Electric Power Plant Units"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb.
(Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i Tekhn. Press, 1970, pp 109-114
(from RZh-Elektrotehnika i Energetika, No 5, May 1971, Abstract No 5045)

Translation: A study was made of the problems connected with creating reliable seals and bearings of atomic electric power plant units the working medium of which is nitrogen tetroxide, and means of solving these problems are noted. The basic difficulties are caused by the specific properties of the heat transfer agents (high oxidizing capacity, low boiling point and low viscosity of the liquid phase). This complicates the selection of the materials of the friction couples and has an effect on the operating conditions of the seals and bearings. Work is being done at the Nuclear Power Institute of the Belorussian SSR Academy of Sciences toward the creation of contactless packing units with floating rings and contact end-type packing units and also hydrostatic and hydrodynamic bearings lubricated with nitrogen tetroxide. There are 3 illustrations and a 4-entry bibliography.

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Titanium

USSR

UDC 621.669.27

MEYERSON, G. A., KREYMER, G. S., GLUSHKOV, V. N., PANOY, V. S., Moscow Institute of Steels and Alloys

"Study of the Influence of Conditions of Production of Metallic Tungsten on the Properties of T15K6 Alloy"

Kiev, Poroshkovaya Metallurgiya, No 6, Jun 72, pp 31-35.

Abstract: The possibility is studied of producing fine-grained, homogeneous tungsten powder in commercial muffle furnaces using direct input of hydrogen, and the influence of the grain size of the tungsten powder produced on the physical, mechanical and cutting properties of the hard alloys is investigated. WO_3 was reduced to W in one stage in an industrial type GSPI muffle furnace. Direct input of hydrogen allows a homogeneous, fine-grained tungsten powder with adsorption of over 0.2 mg/g and mean grain size less than 1 micron to be produced. The properties of T15K6 alloy were studied as functions of sintering temperature. It was found that the alloy has a finer WC-phase grain structure and higher physical, mechanical and cutting properties than standard T15K6 alloy. The cutting properties are 10-30% higher than the standard alloy.

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Mechanical Properties

USSR

UDC 669.018.25

KREYMER, G. S.

Strength of Hard Alloys (Prochnost' tverdykh spлавov), Moscow, "Metallurgiya" Press, 1971, 247 p., 180 illustrations, 66 tables, 250 bibliographic references

Translation Of Annotations: The book offers experimental data on the strength of hard alloys at various temperatures as a function of the structure of the alloys. This is a revised edition of the 1966 publication and is supplemented with data on the mechanical properties of hard alloys for "pure" (four-point) bending and uniaxial compression with greater coverage of the plastic properties of hard alloys. A critical review is made of hypotheses advanced at various times relating the strength of W-Co carbides to their structure and thermal stresses. Proposed is a theory of the mechanism of failure and strength of alloys. The role of alloying hard alloys with tantalum carbide is explained. The monograph is intended for production engineers and scientific personnel of metallurgical, machine-building, and mining industries. It may also be useful to instructors, graduates, and students of high educational institutions.

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KREYMER, G. S., (Prochnost' tverdykh splavov), Moscow, "Metallurgiya" Press, 1971.

Translation: TABLE OF CONTENTS (abridged):

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UDC 669.018.25(02)

KREYMER, G. S.

"Strength of Hard-Metal Alloys"

Prochnost' tverdykh splavov (cf. English above), 2nd edition, revised and augmented, Moscow, "Metallurgiya" (Metallurgy), 1971, 247 pp, ill, 1 r. 86 k. (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11818K by E. Volin)

Translation of Abstract: The book contains experimental data on the strength of hard-metal alloys at various temperatures in relation to alloy structure. Hypotheses, suggested at various times, connecting the strength of WC-Co alloys with their structure and thermal stresses are examined critically. A theory of the failure and strength mechanism of alloys is set forth. The part played by the alloying of hard-metal TaC alloys is shown. One hundred eighty illustrations. Sixty-six tables. Bibliography with 250 titles.

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USSR

UDC 619:616.988.6-097:636.5

KOROVIN, R. N., KREYMER, Yu. Ye., MATYUSHKOV, V. S., LUKINA, V. A., NIKITIN, Ye. Ye., and KUDRYAVTSEV, P. S., All-Union Research Institute of Fowl Diseases

"The Effectiveness of Crude Viral Vaccine Against Marek's Disease"

Moscow, Veterinariya, No 8, 1973, pp 38-39

Abstract: A turkey herpesvirus antigenically related to the virus responsible for Marek's lymphoma was grown in chick embryo fibroblasts and utilized as a vaccine. The efficacy of the vaccine was tested on 1 day old chicks immunized intramuscularly with 500 PFU in 0.2 ml during an epizootic outbreak in Latvia. Mortality due to Marek's disease was 3.2-4.5 times less among the immunized chicks than among the unimmunized controls. Although 100% protection was not afforded the immunized chicks, the economic gains from an effective vaccine are obvious and indicate the importance of prophylactic immunization.

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Категория: Библия для Новоприобщенных. "Новос" Публикации
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UNITED STATES OF AMERICA

“The Possibility of Contact with Aliens”

Next, *Verónica Alejandra Horta Hernández* was born, No. 5, 1977, pp. 22-23.

[illegible]

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KREYN, I. N.

Glasia

SO: JPRS 55937
09 APR 1972

Abstracts

INVESTIGATION OF LANGUAGE AND BEHAVIOR OF WHALES
[Article by I. M. Kreyn, Kiev, Ukrainian S.S.R., Institute of Zoology,
Bureau, No. 7, 1970, pp. 1-24.]

The data available in the literature concerning the complex structure and size of the brain of the dolphin (1-3) and information concerning its collective capacity for memory, orientation, etc. (4-6), directed for investigation and the findings by Kreyn (1970) are presented. The question of whether it is possible to communicate with it.

By the information contact (IX) between two objects we mean an exchange of information, the establishment criterion of which is the acquisition of an adequate response, from the point of view of the transmitter, to an offered message.

Obviously, the level of such a contact depends on the degree of complexity of the transmitted and received information. The information contact is, for example, the contact man makes with various forms of domestic and wild animals, a contact which is based on a conditioned reflex developed in the animal and does not permit the exchange of a complex -- from man's point of view -- set of information.

On such a level, contact with dolphins has already been established: experiments with the dolphin Telly, the artificial dolphins, and the like (19, 27). The problem consists in the possibility of an exchange of information of a more complex type on another level.

In other countries, especially the United States, papers on the establishment of IX with dolphins take two principal directions:

1) Attempts to detect signals of dolphin language by means of acoustical analysis and comparing them with dolphin behavior.

2) Attempts to teach dolphins the language of man (English).

Let us consider each of these.

USSR

KREYN, M. G., Odessa Construction Engineering Institute

"On a Hypothesis of A. M. LYAPUNOV"

Moscow, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 3, Jul-Sep 73,
pp 45-54

Abstract: For $T > 0$ J_T is used to designate a set of locally integrable functions $p(x)$ with the properties:

$$p(x) = p(x + T) \geq 0 \quad (-\infty < x < \infty); \quad p_{av} = \frac{1}{T} \int_0^T p(x) dx > 0.$$

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USSR

KREYN, M. G., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 3, Jul-Sep 73, pp 45-54

For the differential equation

$$y' + \lambda p(x) y = 0 \quad (0.1)$$

with a certain $p \in \mathcal{M}_T$ $\mathcal{A}(\lambda)$ is used to designate a function defined by the equality $2\mathcal{A}(\lambda) = \varphi(T; \lambda) + \psi'(T; \lambda)$, where $\varphi(k; \lambda)$ and $\psi(\lambda; \lambda)$ are solutions of equation (0.1) which satisfy the conditions:

$$\varphi(0; \lambda) = \psi'(0; \lambda) = 1, \quad \varphi'(0; \lambda) = \psi(0; \lambda) = 0.$$

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USSR

KREYN, M. G., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 3, Jul-Sep 73, pp 45-54

The function $\mathcal{A}(\lambda)$ is integral; in its expansion

$$\mathcal{A}(\lambda) = 1 - a_1 \lambda + a_2 \lambda^2 - a_3 \lambda^3 + \dots \quad (0.2)$$

all coefficients a_n are positive functionals of $p \in \Pi_T$: $a_n = a_n(p) > 0$ ($n = 1, 2, \dots$), with $a_1 = T^2 p_{av}$.

In 1902, in a study of the function $\mathcal{A}(\lambda)$, A. M. LYAPUNOV suggested that for any natural $n \geq 2$

$$a_n(p) \leq \frac{1}{(2n)!} \left(T \int_0^T p(x) dx \right)^n, \quad (0.3)$$

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USSR

KREYN, M. G., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 3, Jul-Sep 73, pp 45-54

but he added that he was unable to prove this in the general case and could assert it only for "the two simplest cases, $n = 2$ and $n = 3$." LYAPUNOV's hypothesis proves to be valid in the general case as well, with the following Theorem 0.1: Inequality 0.3 is valid for all $n = 2, 3, \dots$. And if the sign of equality is reached in at least one of them for a given function $p \in \mathcal{N}_T$, it is reached for all natural n and $p(x) \equiv p_{av}$.

The present article shows that Theorem 0.1 follows comparatively simply from a general theorem about nuclear operators in a Hilbert space.

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USSR

UDC: 517.9

KREYN, M. G., NUDEL'MAN, P. Ya., Odessa Engineering Construction Institute,
Odessa Electrical Engineering Institute of Communications

"Concerning Certain New Problems for Functions of the Hardy Class, and Also
Continual Families of Functions With Double Orthogonality"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 3, 21 Mar 73, pp 537-540

Abstract: Let $L_2(a, b)$, $-\infty \leq a < b \leq \infty$, denote the real Hilbert space consisting of all real functions of the complex space $L_2(a, b)$. Let $\mathcal{F}$ denote the non-normed Fourier-Plancherel operator in $L_2(-\infty, \infty)$, more exactly for $f \in L_2(-\infty, \infty)$,

$$(\mathcal{F}f)(\omega) = \int_{-\infty}^{\infty} e^{-i\omega t} f(t) dt \left(= \lim_{N \rightarrow \infty} \int_{-N}^N e^{-i\omega t} f(t) dt \right).$$

Any $L_2(a, b)$ (when at least one of the numbers a, b is finite) is treated as a subspace in $L_2(-\infty, \infty)$ made up of appropriately truncated functions. The notation H (Π), denotes a subspace in $L_2(-\infty, \infty)$ onto which operator $\mathcal{F}$ maps $L_2(0, \infty)$ ($L_2(0, \infty)$). Thus $F \in H$ is a member of Π only when F is Hermitian: i. e., $F(-\omega) = \overline{F(\omega)}$ almost everywhere on the axis.

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USSR

KREYN, M. G., NUDEL'MAN, P. Ya., Doklady Akademii Nauk SSSR, Vol 209, No 3, 21 Mar 73, pp 537-540

The authors consider the following problem: Some Hermitian function $F \in L_2(-1, 1)$ is given together with the number ϵ ($0 < \epsilon \leq \|F\|/2$). It is required to find $g \in L_2(0, \infty)$ having the least norm $\|g\|$ under the condition that

$$\frac{1}{2\pi} \int_{-1}^1 |F(\omega) - G(\omega)|^2 d\omega \leq \epsilon^2, \quad G = \int_0^\infty g(t) e^{i\omega t} dt.$$

The problem has a unique solution determined from the integral equation

$$\mu g(t) + \int_0^\infty \frac{\sin(t-s)}{\pi(t-s)} g(s) ds = f(t), \quad 0 \leq t < \infty,$$

where $f = \mathcal{F}^{-1}(F)$, and $\mu = \mu(\epsilon)$ is some positive function of the argument ϵ . This function approaches zero monotonically when $\epsilon \rightarrow 0$ and, moreover, $\mu^{-1} = \sqrt{2\pi\epsilon} / \|F\| + O(\epsilon^2)$.

The derivations in the paper lean heavily on the results of Koppelman and Pincus (Math. Zs., 71, H. 4, 399, 1959).
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USSR

UDC 517.948:513.88

KREYN, M. G., and DALETSKIY, Yu. L.

"Certain Results and Problems of the Stability Theory of Solutions of Differential Equations in Banach Spaces"

Kiev, Tr. 5-y Mezhdunar. konferentsii po nelineyn. kolebaniyam (Transactions of the Fifth International Conference on Nonlinear Vibrations), Vol 1, 1970, pp 332-347 (from Referativnyi Zhurnal -- Matematika, No 7, July 71, Abstract No 7B871)

Translation: This is a review paper in which certain problems of the theory of linear and nonlinear differential equations in Banach spaces are discussed. Concepts frequently used in the qualitative theory of differential equations are as follows: roughness, strength, and stability, which are among the properties of solutions of these equations that are preserved for any given perturbations of the equations. Properties that are "rough" in the sense that they are preserved in the transition to infinite-dimensional space are examined. B-rough (preserved in the transition to Banach spaces) and H-rough (in the transition to Hilbert spaces) are distinguished. The methods of differential analysis employed in this extension often prove the most natural in considering finite-dimensional problems. From this point of
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KREYN, M. G., and DALETSKIY, Yu. L., Tr. 5-y Mezhdunar. konferentsii po nelineyn. kolebaniyam (Transactions of the Fifth International Conference on Nonlinear Vibrations), Vol 1, 1970, pp 332-347 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B671)

view the following problems are considered: properties of general indicators of increase of solutions, exponential expansion (in particular, dichotomy), aggregates of solutions, integral manifolds of nonlinear equations, problems of the theory of canonical equations studied by methods of operator theory in spaces with indefinite metrics, and so on.

It is noted that stronger variants with H-roughness replaced by B-roughness are possible for certain theorems on H-roughness. Particular emphasis is given to a problem that is unsolved even in the finite-dimensional case, called the W-problem. Authors' Abstract.

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USSR

KREYN, M. G. and LANGER, G. K.

"Defective Subspaces and Generalized Resolvents of the Hermitian Operator in the Subspace Π_X "

Moscow, Funktsional'nyy Analiz i yego Prilozheniya, Vol 5, No 3, 1971, pp 54-69

Abstract: This article, dedicated to Mark Aronovich Maymark on the occasion of his 60th birthday, is actually the second half of a paper begun in the above-named journal (vol. 5, No. 2, 1971, pp 59-71). The first half of the article deals with defective subspaces; and this second half, with generalized resolvents. These latter are defined by the operator-function R_λ from the expression $R_\lambda = \mathcal{P}(\lambda - zI)^{-1} \Pi_X (z \notin \sigma(\lambda))$, where λ is some closed operator of the π -Hermite variety in Π_X having equal defective numbers, and λ is its regular π self-conjugate extension acting in some space $\Pi_K \supset \Pi_X$, while $\mathcal{P}$ is the π -orthogonal projector of space Π_K on Π_X . It is assumed, as it always can be assumed in the investigation of R_λ , that the generating extension λ is a

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USSR

KREYN, M. G. and LANGER, G. K., Funktsional'nyy Analiz i yego Prilozheniya, Vol 5, No 3, 1971, pp 54-69

minimum. A number of theorems concerning these generalized re-solvents are stated and proved. The authors are connected with the Odessa Engineering-Construction Institute and the Dresden Technical University.

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USSR

UDC 517.4

ADAMYAN, V. M., AROV, D. Z., and KREYN, M. G.

"Analytic Properties of Schmidt Pairs of Hankel Operators and the Generalized Schur-Takagi Problem"

Moscow, Matematicheskii Sbornik, Novaya Seriya, Vol 86(128), No 1(9), Sep71, pp 34-75

Abstract: Infinite Hankel Matrices and associated approximational problems are examined. Suppose $\Gamma = (\gamma_{j+k-1})_{j,k=1}^{\infty}$ is a Hankel matrix bounded in ℓ_2 . The sections of the article are as follows: 0. Formulation of the problem; principal results. 1. Infinite Hankel matrices and displacement operator in ℓ_2 . 2. Canonical solutions of the generalized Schur-Takagi problem; completion of proofs of theorem 0.1 and 0.2. 3. Description of all solutions of the generalized Schur problem in the case $\rho > \| \Gamma \|$. 4. Generalized Rouché's Theorem. 5. Description of all solutions of the problem $C^{[K]}$ when $K > 0$. 6. Classical interpolation problems. 7 Continuum analog.

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USSR

ADAMYAN, V. M., AROV, D. Z., and KREYN, M. G.

"Infinite Hankel Block-Matrices and Related Continuation Problems"

Yerevan, Izvestiya Akademii Nauk Armianskoy SSR, Matematika, Vol 6, No 2-3, 1971, pp 87-112

Abstract: The authors study a bounded, infinite Hankel block-matrix

$\Gamma = (\gamma_{j+k-1})_1^\infty$, the γ_j blocks being bounded linear operators from the Hilbert space N_1 to the Hilbert space N_2 ($\gamma_j \in (N_1, N_2)$, $j = 1, 2, \dots$). They term the matrix $\tilde{\Gamma} = (\tilde{\gamma}_{j+k-1})_{-\infty}^\infty$ a full (Γ, ρ) -continuation if $\tilde{\gamma}_j = \gamma_j$ for $j = 1, 2, \dots$ and $\|\tilde{\Gamma}\| \leq \rho$. The set of these continuations is not empty if $\rho \geq \|\Gamma\|$ and becomes infinite if $\rho > \|\Gamma\|$. A special "one-step (Γ, ρ) -continuation" algorithm permits constructing each continuation of the set. The uniqueness theorem is established for the case $\rho = \|\Gamma\|$. The work was motivated by the related problem of finding an essentially bounded operator-valued function $F(\zeta)(F(\zeta) \in (N_1, N_2))$ on the circle $|\zeta| = 1$ with certain negative Fourier $1/2$

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ADAMYAN, V. M., et al., Izvestiya Akademii Nauk Armyanskoy SSR, Matematika, Vol 6, No 2-3, 1971, pp 87-112

coefficients $c_{-j}(F) = \delta_j$, ($j \geq 1$) and with $\|F\|_{\infty} < \rho$. Explicit formulas are given to describe all such functions of F when $\rho > \|r\|$ and $\dim N_k < \infty$ ($k = 1, 2$). The authors divide the article into six sections, each of which is discussed in detail with proofs given. The article contains 17 bibliographic entries.

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USSR

KREYN, M. G., and MELIK-ADAMYAN, F. E., Odessa Construction Engineering Institute, Yerevan State University

"Some Applications of the Unitary Matrix Factorization Theorem"

Moscow, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 4, No 4, Oct-Dec 70, pp 73-75

Abstract: Let the matrix function $\Gamma_0 \in L_1^{(n \times n)}(0, \infty)$ be given. It generates the completely continuous operator Γ_0 in each of the spaces $L_p^{(n \times 1)}(0, \infty)$ ($p \geq 1$) according to the formula

$$(\Gamma_0 f)(t) = \int_0^\infty \Gamma_0(t+s)f(s)ds \quad (f \in L_p^{(n \times 1)}(0, \infty)).$$

A previous article by the authors proved that if and only if

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KREYN, M. G., and MELIK-ADAMYAN, F. E., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 4, No 4, Oct-Dec 70, pp 73-75

$\|\Gamma_0\|_2 < 1$, (for $\Gamma_0(t)$ there exists a unique continuation $\Gamma \in L_1^{(n \times n)}(-\infty, \infty)$ ($\Gamma(t) = \Gamma_0(t)$, given $t \geq 0$), such that the matrix function

$$S_1(\lambda) = I_n + \int_{-\infty}^{\infty} \Gamma(t) e^{-i\lambda t} dt \quad (-\infty < \lambda < \infty)$$

is unitary and admits factorization with zero partial indices. If the matrix Γ_0 is replaced by $\Gamma_0 \mathcal{E}^*$, where $\mathcal{E}$ is an arbitrary constant unitary matrix ($\mathcal{E}^* \mathcal{E} = I_n$), this leads

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KREYN, M. G., and MELIK-ADAMYAN, F. E., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 4, No 4, Oct-Dec 70, pp 73-75

to a certain unitary matrix function which, on being multiplied on the right by $\mathcal{E}$, is designated as $S_{\mathcal{E}}(\lambda)$. For this matrix, given any real λ , we shall have

$$S_{\mathcal{E}}(\lambda) = (P_-(\lambda) \mathcal{Y} + Q_-(\lambda)) (Q_+(\lambda) \mathcal{Y} + P_+(\lambda))^{-1} = \mathcal{Y} + \int_{-\infty}^{\infty} \Gamma_{\mathcal{Y}}(t) e^{-i\lambda t} dt.$$

The following theorem is formulated: Let $\Gamma_0 \in L^{(n \times n)}_1(0, \infty)$ and $\|\Gamma_0\|_1 < 1$. Then the formula

$$\Phi(\lambda) + \mathcal{F}_-(\Gamma_0; \lambda) = (P_-(\lambda) \mathcal{Y}(\lambda) + Q_-(\lambda)) (Q_+(\lambda) \mathcal{Y}(\lambda) + P_+(\lambda))^{-1}.$$

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USSR

KREYN, M. G., and MELIK-ADAMYAN, F. E., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 4, No 4, Oct-Dec 70, pp 73-75

where $\mathcal{G} \in B^{(n \times n)}$, gives a description of all functions $\Phi \in H_{\infty}^{(n \times n)}$ such that for boundary values of Φ on a real axis the inequality

$$|\Phi(\lambda) + \mathcal{F}_-(U_0; \lambda)| \leq 1, \quad (-\infty < \lambda < \infty),$$

is satisfied almost everywhere.

The article also considers a canonical differential equation of the form

$$J dY/dr = \lambda Y + V(r)Y \quad (0 \leq r < \infty),$$

where $V(r)$ is a Hermitian $(2n \times 2n)$ -matrix function.

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USSR

KREYN, M. G., and LANGER, G. K.

"Defective Subspaces and Generalized Resolvents of the Hermitian Operator in the Π_κ Space"

Moscow, Funktsional'nyy Analiz i yego Prilozheniya, Vol 5, No 2, 1971, pp 59-71

Abstract: M. A. Naymark's ["Spectral Functions of a Symmetric Operator," Izv. AN SSSR, seriya matem. (News of the USSR Academy of Sciences, Mathematics Series), No 4, 1970, pp 277-318] classical definition of the generalized resolvent of a hermitian operator acting in a Hilbert space permits direct generalization to the case of the $\mathcal{H}$ -hermitian operator acting in the Π_κ Pontryagin space with the scalar product containing exactly κ ($0 < \kappa < \infty$) negative squares. In the present paper a complete solution to the problem of description of all generalized resolvents of the $\mathcal{H}$ -hermitian operator A given in Π_κ is presented for the case in which the defective numbers of the operator A are

$$n_+(A) = n_-(A) < \infty.$$

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USSR

KREYN, M. G., and LANGER, G. K., Funktsional'nyy Analiz i yego Prilozheniya, Vol 5, No 2, 1971, pp 59-71

A brief historical review of studies of the theory of hermitian operators in Hilbert space is presented. Auxiliary information from indefinite geometry, the simplest properties of $\mathcal{H}$ -hermitian operators, the signature of $\mathcal{H}_2$ subspaces, and auxiliary propositions regarding dissipative operators (maximum dissipative operators, improper maximum dissipative operators, classes of $T(\mathcal{H})$ and $T(\mathcal{H})$ functions) and $\mathcal{H}$ -dissipative operators are analyzed and discussed.

The conclusion of the article will be presented in the next issue of the same journal.

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USSR

KREIN, M.G.

"Chebyshev-Makarov Inequalities in the Theory of the Spectral Functions of a Taut String"

Kishenev, Matematicheskiye Issledovaniya (Mathematica) Researches, p 77-101, Vol 5, No 1, 1970

Abstract: Chebyshev-Makarov inequalities are applied, with a detailed analysis, to a general operator of a string with any mass distribution. In this broad context these inequalities also encompass the classical Chebyshev-Makarov inequalities for finite or infinite problems of Stieltjes moments. The author postulates that each spectral function with a non-negative spectrum of a string is a principal spectral function of the given or extended (regular or singular) string. The string is regular if its mass and length are finite; singular, if infinite. It is noted that orthogonal spectral functions with a non-negative spectrum are obtained if the string is extended to any length using a massless filament. Equations are derived for orthogonal and canonical spectral functions for a string S_1 , and proofs are given for several postulates. Cases are considered for strings weighted with a point-mass head, with clamped ends, with one end free, and with one end free to move in one plane. The vibration characteristics of the string are analyzed.

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USSR

KREYN, M.G., Matematicheskiye Issledovaniya (Mathematic) Researches, Vol 5, No 1, pp 77-101, 1970

It is shown that an orthogonal (canonical) function that has a discontinuity at point ξ yields solutions for three extremal problems, namely:

$$\begin{aligned} \tau \in T(T_+) & \quad [\tau(\xi+0) - \tau(\xi-0)] \\ \tau \in T(T_+) & \quad [\tau(\xi+0) - \tau(-\infty)] \\ \tau \in T(T_+) & \quad [\tau(\xi+0) - \tau(-\infty)] \end{aligned}$$

where T is the set of all spectral functions $\tau(\lambda)$ of a regular string having a maximum jump $\tau(\xi+0) - \tau(\xi-0)$ at point ξ . In this case one and only one function the orthogonal spectral function for which ξ serves as a growth point, has the maximum jump. Other theorems are stated for sets T and T_+ for which the differences have maximum or minimum values in unique canonical spectral functions that have a discontinuity at point ξ or for which ξ serves as a growth point. The author notes that 15 years ago the principal results of this paper were communicated orally to I.B. Kats, who recorded them at that time. Recently, A.A. Nudel'man refined the notes to the form in which they are published. Orig. art. has 6 refs.

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USSR

UDC 669.27'294.051

ZELIKMAN, A. N., KREYN, O. YE., and LOBOVA, T. A.

"Synthesis and Some Properties of Tungsten and Tantalum Chalcogenides"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev, "Naukova Dumka", 1970, pp 61-76 (from RZIN-Metallurgiya, No 11, Nov 70, Abstract No 116170)

Translation: Scientific research work is carried out regarding the conditions of production of WS_2 , W, and Ta diselenides and the chemical and antifriction properties of these compounds. A study is made of the interaction of selenides with water and diluted acid and alkali solutions at room temperature, and its behavior during air oxidation at 300-800°C. It is established that the WS_2 friction coefficient coincides with that of MoS_2 , but its wear is half as much. 7 ill., 3 tables, 7 bibl. entries.

B. Krivonozova

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UDC 669.28.051

USSR

ZELIKMAN, A. N., KREYN, O. YE., TESLITSKAYA, M. V., and INIENBAUM, G. V.

"Synthesis and Some Properties of Molybdenum Disulfide"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev,
"Naukova Dumka", 1970, pp 47-60 (from RZH-Metallurgiya, No 1, Nov 70,
Abstract No 11G179)

Translation: A review is presented of work conducted by the Moscow Institute of Steel and Alloys on the investigation of methods of synthesis of MoS_2 from elements and on the production of MoS_2 by the method of interaction of S with molybdates in the melt and on the study of the structure and lubricating properties of synthetic MoS_2 . 6 ill., 4 tables, 11 bibl. entries. S. Krivososova

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USSR

UDC 546.824.261

MEYERSON, G. A., KREYN, O. YE., KIPRISOV, S. S., and NARVA, V. K.,
Moscow Institute of Steel and Alloys

"Production of Titanium Carbide"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy,
Vol 6, No 10, Oct 70, pp 1749-1752

Abstract: Equilibrium conditions for the reaction $TiO + 2C = TiC + CO$ are studied, as a result of which an equation is derived for the temperature dependence of the equilibrium constant and optimum conditions are determined for the production of titanium carbide with a composition close to the stoichiometric. A study was made of the conditions for the production of titanium carbide at atmospheric pressure in an argon stream in a coal tube furnace. It was found that an increase in the argon flow rate corresponding to a decrease in the partial pressure of the resultant CO shifts the reaction into the region of lower temperatures. Titanium carbide with a composition close to stoichiometric was obtained in the coal tube furnace at $1750^{\circ}C$ in the argon stream, as well as in a vacuum furnace at 1 mm Hg and $1700^{\circ}C$.

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UDC 513.88:513.88

KREIN, S. G., PETUNIN, YU. I., SEMENOV, YE. K.

"Embedding Theorems and Interpolation of Linear Operators"

Moscow, V sb. Teoremy vlozheniya i ikh prilozh. (Theorems of Embedding and Their Applications -- collection of works), "Nauka," 1970, pp 127-131 (from RZh-Matematika, No 7, Jul 1970, Abstract No 7D633)

Translation: The article contains an exposition of results on interpolation of linear operators in scales of Banach spaces and their relationship to embedding theorems. The concept of an interpolation family of spaces is introduced, and various theorems on interpolation and near-interpolation properties of the scales of Banach spaces are considered. The interpolation of pre-kernel operators is investigated as well as embedding theorems for symmetric Banach spaces. Results are given on the interpolation of linear operators which act in symmetric Banach spaces. Application of the results yields some known and new embedding theorems. Author's abstract.

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1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ASSOCIATION OF ORGANIC SULFIDES AND 3-METHYLBENZOTHIOPHENE STUDIED
BY A CRYOSCOPIC METHOD -U-
AUTHOR-(03)-MARKOV, YU.A., RUBINSHTEYN, I.A., KREYN, S.E.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(1), 123-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THIOPHENE, SULFIDE, BENZENE DERIVATIVE, STABILITY CONSTANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1993 STEP NO--UR/0204/70/010/001/0123/0125
CIRC ACCESSION NO--AP0112957

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0112957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLNS. OF SMALLER THAN OR EQUAL TO 0.24 G MOLE OF (N C SUB7 H SUB15) SUB2 S, (N C SUB8 H SUB 17) SUB2 S, ETSCH SUB2 PH, 3,METHYLBENZOTHIOPHENE, PH SUB2 S, AND (PHCH SUB2) SUB2 S IN 1000 G CYCLOHEXANE WERE EXAMD. MEASURABLE ASSOCN. WAS FOUND ONLY WITH LAST 3 COMPOS., THE AV. STABILITY CONSTS. OF THE ASSOCS. (NO. OF MOLS. OF SULFIDE IN THE ASSOC. IS 5) OF THE LAST 2 BEING 4.358 AND 7.482, RESP.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--PLASMA PULSE SOURCE OF ELECTRONS -U-
AUTHOR--(03)--KREYNDEL, YU.YE., GUTOVA, L.A., NIKITYNSKIY, V.A.
COUNTRY OF INFO--USSR K
SOURCE--IZV. VOZ RADIOELEKTRONIKA (USSR), VOL. 13, NO. 1, P.77-9 (JAN.
1970)
DATE PUBLISHED--JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON PLASMA, PLASMA GENERATOR, CURRENT DENSITY, COLD
CATHODE, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1423

STEP NO--UR/0452/70/011/001/0077/0019

CIRC ACCESSION NO--AP0138433

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0134433

ABSTRACT/EXTRACT--(U) GP-3- ABSTRACT. DESCRIBES THE CONSTRUCTION AND THE CHARACTERISTICS OF A PULSE TYPE SOURCE OF THE ELECTRONS, EMPLOYING THE PLASMATRON PRINCIPLE, BUT HAVING THE THERMIONIC CATHODE AND THE INTERMEDIATE ANODE REPLACED BY A PENNING TUBE WITH A COLD CATHODE. RESULTS ARE GIVEN FOR THE OUTPUT CURRENT AND FOR THE EXTRACTOR CURRENT VERSUS THE EXTRACTION POTENTIAL, WHEN THE DISCHARGE CURRENT IS 3.5 A. MEASUREMENTS WERE MADE WITH 10 MUSEC WIDE PULSE, REPEATING AT 50 HZ. THE CATHODE ANODE POTENTIAL WAS 700 V. THE H.F. MODULATION OF THE OUTPUT CURRENT WAS BELOW 20PERCENT. THE BEAM CURRENT DENSITY DISTRIBUTION IS SHOWN AS A FUNCTION OF RADIUS, USING MAGNETIC FOCUSING; THE CURRENT DENSITY AT THE CENTRE IS 30 A PER CM².

UNCLASSIFIED

USSR

UDC 543.544:535.243.062

KAMINIR, L. B., KREYNOLIN, E. YA., UNDRITSOV, I. M.

"Densitometer for Chromatographic Analysis of Minute Amounts of Substances"

Dokl. Vses. soveshch. Optich. i Titrometrich. analizatory zhidk. sred. 1971, Ch 1 (Reports of the All-Union Conference on Optical and Titrimetric Analyzers of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 260-266 (from Khim. i biokhimiya i izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3,32.1123)

Translation: When studying the structure of substances using small samples by chromatographic methods, flow densitometers can be successfully used as the detectors. Decreasing the column size and using small analyzable samples noticeably increase the chromatographic separation rate (0.5-3 hours instead of 10-40 hours) and permit the components to be analyzed at a subnanomolar level (10^{-7} - 10^{-8} grams); that is, the sensitivity of the method approaches the sensitivity of radio isotopic analyses and permits clear recording of the peak eluted with small volumetric intervals. The functional schematic of the newly developed densitometer equipped with the EPP-09-51 potentiometer and used as a detector is presented. The magnitude of the measurable optical density is proportional to the light absorption in the specimen with an error not exceeding 6.5%. It is pointed out that in order to determine the amount of substance with respect to area of the curve on the chromatogram, such errors are admissible. There are 2 illustrations and a 6-entry bibliography.

USSR

UDC: 531.754:621.039.85

KREYNDLIN, I. I., MUKHIN, S. S., NOVIKOV, V. S., PRAVIKOV, A. A.

"The RP-60 Radioactive-Isotope Densimeter"

Tr. VNII Radiats. Tekhn. [Works of All-Union Scientific Research Institute for Radiation Technology], 1972, No 7, pp 80-86 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.1187, by V. S. K.).

Translation: A general view and schematic diagram are presented for an apparatus for measurement of density of soils by a gammascopic method. The operation of the densimeter (D) is based on transmission of a beam of gamma rays, for example, those provided by Co^{60} with an activity of 0.16 μC , through the object being tested, and measurement of the attenuation of the rays by the object being studied, in this case soil. The radioactive D includes a DPG-2 sensor, a converter, an I-1 intensimeter (with strip chart recorder) and P-1 power supply with nominal voltage 12 v. The measurement range of the D is 1-2.3 g/cm; the measurement error is 0.08 g/cm; the sensor has a probe diameter of 61 mm; measurement depth is 5 m; the operating temperature ranges from -10 to +40° C. The RP-60 radioactive D has passed state testing and is recommended for series production. 3 figures, 2 biblio. refs.
1/1

USSR

K

UDC 681.333.7

YEMEL'YANOV, S. S., ~~KREMERLIN, I. I.~~ and SAVITSKIY, I. G.

"A Device for Differentiating"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Draztsy, Tovarnyye Znaki, No 8, 1970, p 121, patent No 264006, Filed 2 Sep 68

Abstract: This Author's Certificate introduces a device for differentiating which contains a pulse shaper, filters and a difference unit. As a distinguishing feature of the patent, the device is simplified by connecting the output of the input pulse shaper to the inputs of two filters with different filtration time constants, while the filter outputs are connected to the inputs of the difference unit, the output of this unit being the output of the device as a whole.

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1/2 018 UNCLASSIFIED
TITLE--A DEVICE FOR DIFFERENTIATING -U-

PROCESSING DATE--27NOV70

AUTHOR--(03)-YEMELYANOV, S.S., KREYNOLIN, I.I., SAVITSKIY, L.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. PATENT NO 264006
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, NO 8,
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PATENT, PULSE SHAPER, ELECTRIC FILTER, DIFFERENTIATING CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1782

STEP NO--UR/0432/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130615

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A DEVICE FOR DIFFERENTIATING WHICH CONTAINS A PULSE SHAPER, FILTERS AND A DIFFERENCE UNIT. AS A DISTINGUISHING FEATURE OF THE PATENT, THE DEVICE IS SIMPLIFIED BY CONNECTING THE OUTPUT OF THE INPUT PULSE SHAPER TO THE INPUTS OF TWO FILTERS WITH DIFFERENT FILTRATION TIME CONSTANTS, WHILE THE FILTER OUTPUTS ARE CONNECTED TO THE INPUTS OF THE DIFFERENCE UNIT, THE OUTPUT OF THIS UNIT BEING THE OUTPUT OF THE DEVICE AS A WHOLE.

UNCLASSIFIED

KREYNOLIN, L. M.

machine building

TECHNICAL TRANSLATION

PTC-RT-23-1064-72

ENGLISH TITLE: The Use of Plastics in Tractor
Machine Building

FOREIGN TITLE: Plstmenlye Plastmas v Traktornom
Mashinostroyenly

AUTHOR: A. P. Bogdanovaya, L. M. Kreynolin

Leningrad, P. S. U. S. S. R.

SOURCE: Mashinostroyeniya, Moscow, 1970

CONTENTS NOT REPRODUCIBLE

Translated for PTC by LEO KAMRER ASSOCIATES (SILICON),
Redwood, City, CA

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This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

615414

Refractory Materials

USSR

UDC 666.764:621.928.37

MARANTS, A. G., GUTMAN, V. I., All-Union Institute of Refractories; FRANTOVA, E. S., ZEGER, I. Ye., VASILIVITSKIY, A. V., KREYDLIN, P. N., All-Union Scientific Research, Planning, and Design Institute of Metallurgical Machinery; ROMANOVSKIY, L. B., KOREN, L. N., and KOSTYRYA, Yu. F., Dnepropetrovsk Metallurgical Institute

"Prospects of the Application of the Melting Cyclone for the Production of Melted Refractories"

Moscow, Ogneupory, No 5, 1973, pp 50-54

Abstract: The process of cyclone melting was investigated with a view to produce melted refractories of the magnesium-spinel and Brazilite-corundum types. Experiments were carried out at the Institute of the Problems of Material Science of the Academy of Sciences UkrSSR. The experiments indicated the possibility of applying melting cyclones with the use of a blast enriched with oxygen for the production of cast fused refractories with a 1800-1900°C fusion temperature in which the melt aggregates in the warming forehearth for aftercasting into molds. The dust removal in cyclone melting does not exceed 5%, thus ensuring the production of a melt which is close to the initial charge in chemical composition. The optimum content of oxygen in the blast at an approximate natural gas consumption of 1.5 m³/kg charge was determined.

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USSR

MARANTS, A. G., et al., Ogneupory, No 5, 1973, pp 50-54

The properties of the produced materials are analyzed. Four figures, three tables, three bibliographic references.

2/2

ENCLOSURE

Acc. Nr:

AP0043582

KREYNES N.M.

Ref. Code: UK 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 522-527

WEAK FERROMAGNETISM IN NiCO_3 N. M. Kreynes, T. A. Shalnikova

The static magnetic properties of a NiCO_3 single crystal are investigated in the 4.2 — 40° K temperature range. The transition point of the weak ferromagnetic state, $T_N = 25.2^\circ \text{K}$, is found. Induction of antiferromagnetic ordering in the vicinity of the transition point is studied. The temperature dependence of the NiCO_3 spontaneous ferromagnetic moment is measured. The main parameters characterizing the properties of the three carbonates, MnCO_3 , CoCO_3 , and NiCO_3 , are compared.

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REEL/FRAME
19762054

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USSR

UDO 621.552.5:621.317.799

VOROB'YEV, N.N., KREYNEL'D, YU.-S., BARYSHNIKOVA, I.A.

"Comparison Of Drift Of Principal Parameters Of Silicon Planar n-p-n Transistors With Various Biases On The p-n Junctions"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 2(52), pp 116-124 (from RZh--Elektronika i yeye primeneniya, No 2, February 1971, Abstract No 2B519)

Translation: The regularity is experimentally investigated of the drift of the parameters: h_{21e} , I_{CBO} , and I_{EBO} of type n-p-n silicon planar transistors, with the tests under conditions of various biases at the junctions. A comparison is conducted of the drift of the parameters in the case of tests in an active regime. It is shown that tests with reverse biases at the collector and emitter junctions can be a sufficiently effective technological test for rejecting non-stable type n-p-n planar transistors. 5 ref. Summary.

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USSR

GROSS, YE. F., KREYNGOL'D, F. I., MAKAROV, V. L., Leningrad State University
imeni A. A. Zhdanov

"Resonance Interaction Between Ortho- and Paraexcitons in a Cu_2O Cuprous Oxide
Crystal With the Participation of Phonons"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15,
No. 7, 5 Apr 72, pp 383-386

Abstract: The exciton luminescence spectra of Cu_2O was studied to determine the frequencies of all optical phonons, including vibrations of Γ_{24}^+ active in Raman scattering. It is noted that in addition to the triple degenerate exciton state $n = 1$ of the "yellow" series with symmetry Γ_{25}^+ (orthoexciton), there should also exist in the Cu_2O crystal a nondegenerate state $n = 1$ with symmetry Γ_2^+ (paraexciton). Transitions only to levels of the orthoexciton Γ_{25}^+ which were resolved in the quadrupole approximation can be observed in luminescence and absorption spectra. The transition to the Γ_2^+ state is forbidden in the dipole and quadrupole approximation and therefore this state has not been observed up until this time. Several bands arising due to annihilation of the exciton with simultaneous excitation or disappearance of phonons are observed in the luminescence spectrum of Cu_2O along with resonance radiation of the exciton Γ_{25}^+ . Transition

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USSR

GROSS, YE. P., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No. 7, 5 Apr 72, pp 383-386

to the Γ_{25}^+ level with the participation of Γ_{25}^- , Γ_{12}^- , Γ_{27}^- , and Γ_{11}^- phonons is permissible in the dipole approximation. A table is given showing the frequency of optical phonons of cuprous oxide measured on the basis of luminescence spectra. In addition to phonon repetitions the table shows an additional radiation band which is located at a distance of about 180 cm^{-1} from the line of the orthoexciton and which has the characteristic shape of phonon repetition of the free exciton. The dependence of the luminescence intensity of this band on temperature is sharply different from the temperature dependence of the remaining phonons. It is also noted that phonon repetition with a frequency of 180 cm^{-1} is never encountered in the radiation spectrum of bound excitons of cuprous oxide. It is suggested that this band arises from the interaction of a phonon with another (not Γ_{25}^+) exciton state. Although the authors knew where the paraexciton level should be located, it could not be observed either in absorption or in luminescence. It was observed only in crystals subjected to deformation, and the new line appeared in the luminescence spectrum of Cu_2O under compression of the crystal along the C_4 axis of symmetry. It is concluded that the rise of the paraexciton line in the spectrum of cuprous oxide under deformation is due to resonance scattering of the orthoexciton through the level of the paraexciton with excitation of a phonon and subsequent radiative transition to the ground state.

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1/2 019 UNCLASSIFIED
TITLE--KINETIC DETERMINATION OF COPPER -U-

PROCESSING DATE--16OCT70

AUTHOR--(05)-KREINGOLD, S.U., BOZHEVOLNOV, YE.A., ANTONOV, V.N.,
PANTELIMONOVA, A.A., SOSENKOVA, L.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,952
REFERENCE--OTKRY, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(4) 95
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--COPPER, CHEMICAL PATENT, OXIDATION, HYDROGEN PEROXIDE,
FLUORIDE, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1994

STEP NO--UR/0482770/000/000/0000/0000

CIRC ACCESSION NO--AA0115793

UNCLASSIFIED

2/2 019
CIRC ACCESSION NO--AA0115793

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COPPER WAS DETD. KINETICALLY BY
THE OXIDN. OF AMIDOL BY H SUB2 O SUB2 IN A FLUORIDE BUFFER SOLN. AT PH
2.5-4.5.

UNCLASSIFIED

USSR

UDC 662.997

GRIGOR'YEVA, G. M., KREYNIN, L. B., LANDSMAN, A. P.

"Effect of Cosmic Radiation on Solar Elements"

Tashkent, Celliotekhnika, No 5, 1971, pp 3-17

Abstract: A survey of studies of the mechanism of radiation damage to solar elements, shielding of them and increased resistance to irradiation is presented. The discussion includes 1) the radiation environment in space, 2) the effect of hard radiation on silicon photoconverters -- the life of minority carriers in the material, the spectral distribution of the photosensitivity, the photoenergy characteristics -- 3) protection of solar cells from cosmic radiation and 4) improving the radiation resistance of solar cells. Graphs are presented showing the equal intensity lines in the plane of the magnetic meridian for two energies of electrons and protons in space, the inverse lifetime in the base region of n-p-photoconverters bombarded by electrons as a function of dosage, the energy dependence of the effectiveness of electron damage to n and p-silicon, the energy dependence of the effectiveness of proton damage to p-silicon with a specific resistance of one ohm-cm, the spectral distribution of silicon photoconverters bombarded with protons with an energy of $E = 19.6$ megaelectron volts and the spectral characteristics of

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USSR

GRIGOR'YEVA, G. M., et al., Geliotekhnika, No 5, 1971, pp 3-17

silicon photoconverters bombarded by protons with an energy of $E = 0.2$ megaelectron volts, the cross section of a photoconverter with sharply nonuniform concentration distribution of defects with respect to depth, the spectral distribution of the collection factor of a photoconverter bombarded by protons with an energy of 400 kiloelectron volts at an angle of 45° , the load characteristics of a silicon photoconverter bombarded by protons with an energy of 6.3 and 0.2 megaelectron volts, and the power taken from a silicon photoconverter as a function of the load voltage in the case of bombardment by various integral proton fluxes with an energy of 6.3 megaelectron volts and 0.2 megaelectron volts. The characteristics of these plotted data are discussed. An equation is presented for calculating the damage to silicon photoconverters by protons and high-energy α -particles and, with some approximation, electrons. The equation is subjected to transformation making it applicable when experimental data are available on the effectiveness of damage to photoconverters with protection of a given thickness or preliminary calculations are performed which establish the equivalence between the omnidirectional unit fluxes of particles of various types and energies and the standard radiation flux -- in the given case, electrons with an energy of 1 megaelectron volt. The most prospective methods of improving radiation resistance are considered to be

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USSR

GRIGOR'YEVA, G. M., et al., Geliotekhnika, No 5, 1971, pp 3-17

high-temperature annealing of the converters and the manufacture of p-n-type photoconverters with an admixture of lithium. Replacement of silicon by GaAs for the manufacture of photoconverters may be useful from the point of view of sensitivity to hard radiation. A lengthy bibliography is presented as a basis for the indicated discussion and conclusions.

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USSR

Photoelectric Effect

UDC: 621.472:621.383

GORODETSKIY, S. M., GRIGOR'YEVA, G. M., KREYNIN, L. B., LANDSMAN, A. P., LAZOVSKIY, V. V., and SOMINSKIY, E. S.

"Difference in Radiation Stability of n-Type and p-Type Silicon Photoelements"

Tashkent, Geliotekhnika, No. 1, 1971, pp 3-8

Abstract: The damaging effects of cosmic radiation on earth satellite solar batteries and the study of the behavior of silicon photocells in such fields are the subjects of this article. Such studies have shown that p-type silicon is more radiation-proof than n-type, the difference in the damage sustained by the two being a function of the kind and energy of the particles bombarding them. Research conducted by the authors on the temperature dependence of minority carrier lifetimes in irradiated p-type silicon with a resistivity of 1 ohm-cm showed that the recombination center subject to electron bombardment with an energy level of 1 Mev and 8 Mev retains the same position in the forbidden zone, with a ratio of the electron capture cross section to the hole capture cross section equal to 70. Similar effects are observed in n-type silicon subjected to electron irradiation. This is essentially a review article, with a bibliography of 19 titles.

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USSR

GORODETSKIY, S. M., et al, Geliotekhnika, No. 1, 1971, pp 3-8

The authors are associated with the All-Union Order of the Labor
Red Banner Scientific Research Institute of Current Sources.

USSR

UDC 535.215.6

GORODETSKIY, S.M., GRIGOR'YEVA, G.M., KREYNIN, L.B., LAZOVSKIY, V.V., LANESMAN, A.P., SOMINSKIY, M.S.

"Effect Of Electron Irradiation On The Recombination Parameters Of p-Silicon And The Photoelectric Characteristics Of Silicon n-p Junctions"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals-- Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 159-266 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B269)

Translation: The results are discussed of an investigation of the bombardment of silicon photoconverters by electrons in the 0.5--18 Mev range of energies. As follows from the photoelectric characteristics presented, impairment of the photoconverters by electrons is characteristics for the case of the action of penetrating hard radiation. The energy dependence was experimentally found of the damage factor of the p-silicon base with a resistivity of 1 ohm.cm. An analysis of the changes of the dependences of the lifetime on the injection level and the temperature made it possible to draw the preliminary conclusion that the center determining the decrease of the lifetime of the p-silicon irradiated by electrons is found at 0.2 ev above the top of the valence band and has a ratio of the electron and hole capture cross sections of ~ 100 . 6 ill. 17 ref.

1/1

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USSR

UDC 621.383.567

GRIGOR'YEVA, G.M., KREYNIN, L.S., LANDSMAN, A.P.

"Investigation Of The Possibilities For An Increase Of The Stability Of The Photoelectric Characteristics Of Irradiated Silicon n-p Junctions"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals-- Collection Of Works), Minsk, "Nauka i tekhn.," 1970, pp 167-175 (from RZh--Elektronika i yeye primeneniya, No 1, January 1971, Abstract No 18270)

Translation: Methods are considered for increasing the stability of photoconverters operating in the conditions of hard radiation action. One of the methods in question is thermal annealing of the irradiated devices. A change is considered in the process of annealing of the spectral distribution of photosensitivity and the diffusion length of the minority carriers in the base of irradiated n-p type photoconverters. Another possibility for assuring radiation resistance is doping them with lithium. The results are presented of irradiation and low-temperature annealing of p-n type photoconverters with an impurity of lithium and various concentrations of oxygen. In the case when the content of oxygen in silicon is small ($< 10^{17} \text{ cm}^{-3}$) devices with an impurity of lithium reveal an extremely high resistance to irradiation. The ability of lithium to neutralize recombination centers in silicon having a nonradiation origin is also shown.

5 ill. 5 ref. G.B.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CONDUCTING AEROSOL IMMUNIZATION UNDER FIELD CONDITIONS -U-

AUTHOR--(05)-VIKULOV, I.M., VORONTSOV, I.V., KREYNIN, L.S., SEVERTSOVA,
M.K., KAVERINAFIRGANG, K.G.
COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 1, PP 54-56

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AEROSOL IMMUNIZATION, TYPHOID FEVER, MILITARY MEDICINE,
BIOMEDICAL CHAMBER/(U)UST56 CHAMBER, (U)US056 CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1314

STEP NO--UR/0177/70/000/001/0054/0056

CIRC ACCESSION NO--AP0136705

UNCLASSIFIED

2/2 030

CIRC ACCESSION NO--AP0136705
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

GRAPHIC INFORMATION. AEROSOL IMMUNIZATION AGAINST TYPHOID WAS CONDUCTED IN THE UST-56 CHAMBER (VOLUME 48.5 M PRIME3, AREA 22 M PRIME2) AND THE USB-56 CHAMBER (VOLUME 138.3 M PRIME3, AREA 58.5 M PRIME2). PEOPLE WERE EXPOSED TO AEROSOL TYPHOID VACCINES OF SERIES 21-65 AND 1-67 FOR 12-15 MIN. THE TEMPERATURE IN BOTH CHAMBERS BEGAN TO RISE IMMEDIATELY AFTER ENTRANCE OF PEOPLE (SEE TABLE 1) AND REACHED 28-30 C IN SPRING AND SUMMER AND 22-24 C IN FALL AND WINTER. RELATIVE HUMIDITY DID NOT INCREASE, BUT DROPPED SLIGHTLY THREE MINUTES AFTER THE START OF IMMUNIZATION AND REMAINED FAIRLY CONSTANT AT 64-72 PERCENT. THE CONCENTRATION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 3. THE DISTRIBUTION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 4. SINGLE AEROSOL IMMUNIZATION WITH BOTH VACCINES IN THE UST-56 CHAMBER PRODUCED A STATISTICALLY RELIABLE INCREASE IN ANTIBODY TITERS. THE SAME RESULTS WERE OBTAINED AFTER IMMUNIZATION IN AN ORDINARY ROOM. THE FREQUENCY OF FEVER REACTIONS IN IMMUNIZED PEOPLE WAS TWO TO THREE PERCENT IN 12 HRS AND ONE TO TWO PERCENT IN 24 HRS, BOTH IN GROUPS INOCULATED IN CHAMBERS AND IN A ROOM. THERE WERE NO STRONG REACTIONS. A GROUP OF 2166 PEOPLE WAS INOCULATED IN THE UST-56 WITH VACCINES OF SERIES 21-65, AND A GROUP OF 1248 WITH SERIES 1-67. TWO PEOPLE (A PHYSICIAN AND HELPER) WERE ABLE TO INOCULATE 1248 PEOPLE IN A UST-56 CHAMBER IN 2 HRS, 40 MIN, AS COMPARED WITH THE NORM OF 150 STANDARD INOCULATIONS IN THE SAME PERIOD CONDUCTED BY SIX MEN.

FACILITY: MEDITSINSKAYA SLUZHBA.

UNCLASSIFIED

K
Immunology

USSR

UDC 615.47:615.435.1

BIKULOV, I. M., Maj Med Serv, VORONTSOV, I. V., Lt-Col Mil Serv, KRENNIN, M. S., Lt-Col Med Serv, BEYBETLOVA, H. H., and KAVERINA-FIRGOVA, R. G.

"Conducting Aerosol Immunization Under Field Conditions"

Moscow, Voenno-Meditsinskiy zhurnal, No 1, 1970, pp 54-55

Abstract: Experiments were conducted to determine the possibilities and advantages of conducting aerosol immunization against typhoid fever under field conditions in a tent. Dry aerosol type bacterin vaccines of series 01-68 and 1-67 were used. The immunization was atomized and dispersed with the help of a special device placed in the center of the tent. For comparative purposes, parallel dispersion of the dry vaccines was conducted under normal conditions in a room. Immunological shifts in people immunized were determined by titration of O-agglutinins and Vi-hemagglutinins 10 days and a month after immunization. Data obtained by both methods of immunization indicated that a considerable increase in the titer of protective antibodies was produced, and that there was practically no difference in the results obtained after immunization under normal

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USSR

BIKULOV, I. M., et al., Moscow, Voenno-Meditsinskiy Zhurnal, No 1, 1970, pp 54-56

Conditions in a room and under field conditions in a tent. In number of average temperature reactions was about the same, and no strong reactions were observed. Further investigations established that a brigade consisting of only two people -- a physician and registrar -- working in a tent and using the aerosol method, immunized an average of 1,243 people in a period of two hours and 40 minutes. A brigade of six people -- a physician, registrar, and four sanitary instructors, working continuously with a M. Lermic could vaccinate only 150 people in the same period.

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USSR

UDC 550.838:551.24(571.6)

KREYNIN, M. L.

"Geological Results of Statistical Analysis of the Directions of the Axes of Elementary Magnetic Anomalies in the Far East"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 6, 1972, pp 1,328-1,331.

Abstract: The magnetic field of the Far East has a complex interference nature, resulting from the influence of various geological factors. This article presents the results of statistical analysis of the strike of some 12,000 axes of elementary magnetic anomalies, first used as applicable to individual geological objects. The rose diagrams of a number of zones in the area are briefly analyzed.

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USSR

UDC 621.351.035.2(088.8)

KREYNIN M. N., RUVINSKIY, L. G., ADAMYAN, R. G.

"Device for Manufacture of Electrodes of Chemical Current Sources"

USSR Author's Certificate No 298975, Filed 18/12/69, Published 3/05/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 3, 1971, Abstract No
3 L248 P by V. S. Levinson).

Translation: As a supplement to USSR Author's Certificate No 204404 (see
RZhKhim, 1970, 23L231), tableting and pressing units, devices for the manu-
facture of electrodes are equipped with nonmoving rollers installed on
sliders, connected by rubber compensators, while rubber balloons filled with
oil under pressure are placed in the end cavities of the nuts. This in-
creases the productivity and improves the reliability of the device.

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- 30 -

Acc. Nr: **RA0108725**

Abstracting Service:

Ref. Code:

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

[242991 MACHINE FOR FIXING SEPARATING MATERIAL TO ELECTRODES of chemical cells has each welding unit in the machine fitted with an electrical cutter at the sides of which are spring-loaded catches which press the separating material (in tape form) to the edges of a longitudinal slot - in a supporting plate. The feed-in mechanism for the separation material takes the form of a shaped template for tensioning the welded butt joint of two strips of separation material. In slots of this template operate, with reciprocating motion, the shaped clamps of the transporter which transfers the electrodes and separation material to the welding unit. 15.3.68. as 1225550/24-7, RUVINSKII, L.G. KREININ, M.N. POLYANIN, V. Ya. et al (25.9.69) Bul. 16/5.5.69. Class 21b, Int. Cl. H 01a.)

AUTHORS: Ruvinskiy, L. G.; Kreynin, M. N.; Polyanin, V. Ya.;
Adamyanyan, R. G.; Manukhin, S. V.; Gurushkin, V. V.

REEL/FRAME

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UDC 548.55

USSR

ROZIN, K. M., KREYNIN, O. L., and SHASKOL'SKAYA, H. P., Moscow Institute of Steel and Alloys

"Calculation of Effective Impurity Distribution Coefficients in Growing Single Crystals From the Melt"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 7, No 7, Jul 71, pp 1105-1109

Abstract: From the investigation of KCl-monocrystals with Pb, Zn, and Cu impurities, grown from melt by the Kirovskiy method, it was found that the distribution of impurities does not comply with the distribution character determined from a usually used function. This non-conformity is analyzed and it is demonstrated that in the real growing process the part of the liquid phase which practically reacts with the growing crystal has to be considered and that the mentioned non-conformity can be taken into account by experimentally determinable distribution coefficients. An equation characterizing the impurity distribution is presented. Four illustrations, three formulas, thirteen bibliographic references.

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UDO 519.216.2:669

USSR

KREYNINA, G.S.

"Current-Voltage Characteristics Of Palladium And Vanadium Films"

Radiotekhnika i elektrotehnika, Vol XVII, No 6, June 1972, pp 1269-1272

Abstract: As a continuation of two previous papers by the author, the present work experimentally studies longitudinal (parallel to surface of film) electrical conductivity. An uneven change in time of the form of the current-voltage characteristic was observed for palladium and vanadium films. The transition of smoothly increasing current-voltage characteristics into loop-shaped characteristics with maximum current and with maximum voltage is obtained for films of palladium and vanadium. The author thanks V.N. Chernavskiy and G.V. Astapov for long-time aid in the construction of the individual parts of the equipment used. 1 fig. 4 ref. Received by editors, 14 April 1971.

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USSR

UDC: 621.373.001.24:621.372.413

VINOGRADOV, G. I., KREYNOVICH, Ya. R., RADETEKIY, M. N., SLUTSKIY, P. G.,
SHERAYZIN, A. K., CHISTYAKOV, V. A.

"A Device for Tuning Resonant Circuits"

USSR Author's Certificate No 280579, filed 5 Jan 67, published 17 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6E384 P)

Translation: A device is proposed for tuning resonant circuits such as cavity circuits. The device contains a two-armed lever connected by a rod to the tuning element of the circuit to be adjusted, and resting on the cams of a discrete controlling mechanism. To improve the operating precision of the device, the two-armed lever is made in the form of a yoke equipped with regulating screws and connected to a set of levers whose spring-loaded shanks rest on the cams of the control mechanism. Two illustrations. V. P.

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Ya. A. KREYSBERG

AM0033529

Simulin, N.A.; Mel'nikov, Ye. Ya.; Furman, M. S.; Tsvetkov, V. A.;
Samarin, E. R.; Alekseyev, N. M.; Tveretzkii, S. A.; Kreyser, A. A.
 (editorial board)

Handbook for the Nitrogen Worker, Vol. 2 (Spravochnik rabotnika.
 Khimiya. 445 pp. (1974, S. 2))

TABLE OF CONTENTS:

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19710038

AM0033:9

In the second volume of the handbook are examined the physico-chemical bases of the processes and industrial projects for the production of nitric acid and nitric fertilizers. The handbook is designed for technical engineers in the nitric and other branches of chemical industry. Each chapter has a bibliography, in all 294 references

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19710039

UDC: 543.42.062

USSR

GANOVICH, M. V., KABANOVA, M. A., KRICHEVER, N. Ya., MAKOVICZ, B. B., SOKOLOV, B. A.

"One-Channel, One-Beam Atomic Absorption Spectrophotometer Model AAS-1K"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 81-86 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1097 by V. S. Krasneva)

Translation: A report is presented on the development of various types of atomic absorption spectrophotometers at the All Union Scientific Research Institute for Scientific Instruments (Leningrad). A description is presented of the basic circuits and designs used in creation of the model AAS-1K general laboratory device. The AAS-1K is a single structure, built into a common case, consisting of functionally independent blocks (B): the pulse power supply B for the hollow-cathode tube, the type BV-2 high-voltage power supply B, the specimen feed B, the gas feed and distribution B, the tube holder, heater, monochromator, measurement B and type KSP-4 recording potentiometer. 2 figures; 2 bibliog refs.

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USSR

UDC: 535.376

GOL'DMAN, A. G., deceased, PROSKURA, A. I., KRICHEVETS, A. M., Institute of Physics, Academy of Sciences of the UkrSSR, Kiev

"Interaction of Electroluminescence and Photoconductivity During Switching in ZnCdS-Cu,Mn Phosphor Crystals"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 7, Jul 72, pp 1148-1151

Abstract: Conductivity switching is studied in polycrystal electrophosphors. It is shown that conductivity can be amplified by absorption of self-radiation by a photoconductive electrophosphor and induction of photocurrent. The photoconductivity accompanying induced electroluminescence was sustained by the effect of the electroluminescent emission. The triggering of electroluminescence was studied as well as the spectral characteristics of switching, temperature quenching of high conductivity, and the kinetics of conductivity. ZnCdS-Cu,Mn solid solutions were studied at 77°K. Switching was based on amplification of dark conduction by a factor of 10^5 - 10^{10} in the presence of a light source. Either the action of the light was combined with a constant electric field (40 kv/cm) or else the electric field was applied after illumination. Electroluminescence occurred simultaneously with amplification of conductivity. It is shown that the switching effect involves positive feedback between electroluminescence brightness and the self-induced photocurrent.

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